

EPA Superfund

Explanation of Significant Differences:

JANESVILLE ASH BEDS

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JANESVILLE, WI

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FINAL

EXPLANATION OF SIGNIFICANT DIFFERENCE

JANESVILLE DISPOSAL FACILITY

(JANESVILLE ASH BEDS AND JANESVILLE OLD LANDFILL NATIONAL PRIORITIES LIST SITES AND ADJOINING AREAS)

JANESVILLE WISCONSIN

I. Introduction

The Janesville Disposal Facility (JDF or "the site") is located on a 65-acre parcel of land located in northwestern Janesville, Wisconsin. The facility contains four different areas: the Ash Beds (a National Priorities List or NPL Site), the Old Dump, the Old Landfill (another NPL Site) and the New Landfill. All four areas have been combined and the cleanup is being addressed jointly under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA). The Ash Beds Site consists of five ash beds in an area of approximately 400 feet, in which industrial liquids and sludges were deposited and allowed to evaporate. The Old Landfill and New Landfill are mixed municipal/industrial landfills which occupy approximately 18 and 22 acres, respectively. The Old Dump area was a general refuse dump which occupies about 15 acres. The JDF as a whole is bordered on the north by an active landfill, on the west by commercial property, on the south and east by public recreational areas and wetlands, and on the northeast corner by a residential neighborhood.

The U.S. Environmental Protection Agency (U.S. EPA) and the Wisconsin Department of Natural Resources (WDNR) are the lead and support agencies, respectively, for the site. Pursuant to Section 117(c) of CERCLA and Section 300.435(c)(2)(i) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). U.S. EPA has determined that it is necessary to make a significant change in the selected remedy for the site.

The Record of Decision (ROD) requires the installation of groundwater extraction and treatment systems, if needed. After reviewing groundwater monitoring data collected over several years, U.S. EPA has determined that natural attenuation has significantly reduced contaminant levels in the groundwater. Based on improvements in the levels of groundwater contamination downgradient of the site, U.S. EPA and WDNR have determined (i) that groundwater extraction and treatment are not necessary to achieve regulatory requirements and to protect public health and the environment, and (ii) that these goals can be achieved by natural attenuation of groundwater contaminants. Contaminant concentrations in the groundwater will continue to be monitored and U.S. EPA will periodically review monitoring data to assess whether natural attenuation is reducing contaminant levels in a satisfactory manner.

This Explanation of Significant Difference (ESD) will become part of the Administrative Record File for the site. Which is located at U.S. EPA's offices at 77 West Jackson Boulevard in Chicago, Illinois. This ESD and Supporting documentation are also available for viewing at the public repository of site-related documents at the Janesville Public Library at 316 South Main Street in Janesville, Wisconsin.

II. Summary of Site History, Site Contamination, and Selected Remedy

The Old Dump, Old Landfill, and New Landfill operated one after the other during the period between 1950 and 1985, each closing as it reached design capacity. The Old and New Landfills are known to have accepted both municipal and industrial wastes, including drummed solvents, used oils, paints and paint thinners, and dried sludges from the Ash Beds Site. The Ash Beds Site and the New Landfill are also RCRA-regulated units, closed under interim status, while the Ash Beds and the Old Landfill were listed on the NPL. Prior to closure of the Ash Beds, the City of Janesville excavated several thousand tons of contaminated material from the Ash Beds. Some material was incorporated into neighboring landfills (including the Janesville Old Landfill) and some was disposed at private hazardous waste facilities. The City of Janesville back-filled the Ash Beds with sand and capped the area with 2 feet of clay. When the Old Landfill was closed in 1987, the City of Janesville

placed two feet of clay over the landfill. When the New Landfill was closed, it was also capped with two feet of clay.

Responding to an Order from the U.S. EPA, in 1987 a group of Potentially Responsible Parties (PRPs) began a Remedial Investigation/Feasibility Study (RI/FS) for the combined sites. The RI/FS confirmed the presence of hazardous constituents in the landfills and ash beds and the risk analysis confirmed that the contaminants presenting the most health risk in the groundwater downgradient of the site were volatile organic compounds (VOCs), including, among others trichloroethene (TCE), vinyl chloride, tetrachloroethene(PCE), 1,2-dichloroethene (1,2-DCE), and benzene. Secondary contaminants included arsenic, barium, manganese, and iron. (Contaminant concentrations are discussed in Section III of this ESD.) These are no private residential wells or municipal supply wells in the line of the groundwater plume between the landfill and the primary groundwater discharge point, the Rock River, 1200 feet west of the site.

On December 29, 1989, U.S. EPA issued a Record of Decision (ROD) which outlined the remedy selection process and the selected clean-up actions for the entire JDF, including the two NPL sites. The major components of the selected remedial action were:

- ! institutional controls
- ! landfill cap improvements for the New Landfill, including gas control and leachate collection improvements
- ! landfill cap improvements for the Old Landfill NPL Site
- ! remove and dispose of ash piles at the Ash Beds NPL Site
- ! maintain present cap and upgrade site drainage at Ash Beds Site
- ! continued groundwater and air monitoring
- ! installation of groundwater extraction and treatment system if needed

Wisconsin DNR concurred with the selected remedy in the ROD

In September 1991, U.S. EPA and a group of PRPs (including the City of Janesville and 60 industrial parties) signed a Consent Decree under joint RCRA/CERCLA authorities for cleanup of the entire JDF, including the two NPL sites. Since that time, the PRP group has removed all remaining ash stockpiles for disposal and seeded, graded and maintained the clay cap of the Ash Beds site. They have also regraded the Old and New Landfills, and installed a combined cap which meets State and Federal regulations, including installation of a gas collection system. On June 26, 1997, U.S. EPA and WDNR personnel conducted the final inspection of the site and found that this work had been completed satisfactorily.

The PRPs, with oversight of U.S. EPA and WDNR, conducted three rounds of groundwater monitoring during the RI/FS in 1987-88, and have conducted quarterly monitoring since 1993. This monitoring has produced a substantial body of historical and current groundwater data on which to base a decision to substitute monitored natural attenuation for extraction and treatment at this site. Since the original sampling in 1987, groundwater adjacent to the site has improved greatly due to the removal of source material, a private groundwater treatment system operated at the Parker Pan facility nearby, the installation of new and improved landfill caps, and natural attenuation.

The following section discusses U.S. EPA's determination that groundwater has improved to the extent that extraction and treatment is not needed at the site.

III. Explanation of Significant Difference

The ROD for this site requires groundwater to be extracted and treated if needed. Because the Agency has now determined that it is not needed, we are issuing this ESD. The decision not to require the installation of groundwater extraction and treatment systems is based on a decade of water-quality data gathered between 1987 and 1997. These data are summarized in a report entitled "Petition for Eliminating Groundwater Pump and Treat System", submitted by the PRP group on May 29, 1997 (Petition). The Petition will become part of the Administrative Record File for the Site. While not necessarily endorsing all conclusions stated in the Petition U.S. EPA believes that the data summaries included in the Petition are accurate and is in general

agreement with the technical information contained in the Petition.

The Applicable or Relevant and Appropriate Regulations (ARARs) for groundwater at the site include the National Primary Drinking Water Standards and Chapter NR 140 of the Wisconsin Administrative Code (NR 140). The Drinking Water Standards and NR 140 provide concentration standards used to limit the effects of contaminants in the groundwater, including maximum contaminant levels (MCLs) from the Drinking Water Standards and preventive action limits (PALs) and enforcement standards (ESs) from NR 140. MCLs, PALs, and ESs are all stated in terms of concentrations for various contaminants. PALs are generally lower concentrations than primary MCLs or ESs. MCLs can be either primary standard, which are health-based, or secondary standards, which are unenforceable federal guidelines regarding taste odor, color and certain other non-aesthetic effects of drinking water. PALs and ESs can be either public health-related standards or public welfare-related standards.

Both the concentrations and the areal extent of contaminants in groundwater downgradient of the JDF have decreased greatly since 1987. In 1987, the groundwater plume which exceeded the PALs, ESs and primary MCLs extended over much of the area between the JDF and the Rock River. At that time, at least five VOCs frequently exceeded PALs, ESs and primary MCLs. The highest contaminant concentration related to the JDF site were located downgradient of the Ash Beds at W5 (e.g., 480 ug/l PCE) and at W6 downgradient of the Parker Pen USA Limited facility (e.g., 4,000 ug/l PCE). (The high PCE concentrations observed at W6 were likely caused by a spill at the Parker Pen facility in 1985.) By 1997, only two VOCs exceed PALs: PCE at 61 ug/l near the Ash Beds and TCE at 27 ug/l near Parker Pen. At well W6 near the Rock River. TCE concentrations have decreased from over 20,000 ug/l in 1988 to non-detect in 1997. A detailed discussion of trends for all major contaminants may be found in the documents in the Administrative Record which support this ESD.

The improvement in groundwater quality at the JDF site is due mainly to (i) remedial actions taken at the site, (ii) a private groundwater treatment system at the Parker Pen facility, and (iii) natural attenuation.

Remedial actions. Remedial actions at the JDF site include capping of the Ash Beds in 1985 just prior to the Remedial Investigation; Removal of approximately 10,000 cubic yards of ash in 1996 and incorporation under the New Landfill cap; and construction of a multi-layer clay cap over two landfills on the JDF site in 1996, which greatly lessens the infiltration of rainwater into the landfill waste and thus lowers the migration of contaminants into the groundwater.

Private groundwater treatment system. During 1993, the Parker Pen facility operated a groundwater extraction and treatment system to treat TCE and degradation products released in a spill on their property in 1985. The capture zone for this system was downgradient of the JDF site and it is reasonable to assume that VOC contaminants migrating into the capture zone from the JDF also were removed.

Natural attenuation. The term "monitored natural attenuation" refers to the reliance on natural attenuation processes (within the context of a carefully controlled and monitored site cleanup approach) to reduce the concentration of contaminants in order to restore groundwater quality within a timeframe that is reasonable compared to other methods. There are several different physical, chemical, and biological processes that can contribute to natural attenuation, including biodegradation, dispersion, dilution, sorption, volatilization, and chemical or biological.

stabilization, transformation or destruction of contaminants.

Natural attenuation is effectively reducing the concentration and the mass of contaminants at the JDF site. The predominant natural attenuation process in this setting is likely biodegradation. Three lines of evidence supports the presence of natural attenuation at this site:

(i) Stable to receding plume conditions.

For example, the overall size and concentration of the total chlorinated ethene (TCE, PCE and 1,2-DCE) contaminant plume decreased significantly between 1988 and 1993. Since no active groundwater remedial action had been implemented prior to July 1993, when groundwater extraction was initiated at Parker Pen, the reduction in total chlorinated ethene concentrations from July 1988 to April 1993 is attributable to natural

attenuation processes.

(ii) Decreasing concentrations along flow paths.

For example, in March 1997, groundwater flowing from beneath the Ash Beds at monitoring well W5 contained 47 ug/l PCE and 7 ug/l TCE, but by the time it reaches well W6 near the Rock River, the concentrations have decreased to 27 ug/l PCE and no TCE was detected.

(iii) The presence of redox and geochemical indicators of biodegradation

For example, increasing concentrations of iron (Fe²⁺) and manganese (Mn²⁺) oxides exist in groundwater immediately downgradient of the Ash Beds and the landfills (an indicator of biodegradation), but are not present further downgradient along groundwater flow lines as conditions become oxidized. Under these oxidizing conditions closer to the river, other metals, such as arsenic, are co-precipitated with the iron and manganese and no longer present in the groundwater.

Each of these lines of evidence is discussed in detail as it relates to the JDF site in the report "Petition for Eliminating Groundwater Pump and Treat System" referenced above, which is in the Administrative Record for this site.

Currently, only PCE and TCE exceed the federal primary drinking water standards (primary MCLs) at the site. Arsenic and barium continue to exceed the PALs, although levels are below the primary MCLs and the ESs. There are no primary MCLs (which are health-based drinking water standards) for iron and manganese, although the levels of both continue to exceed unenforceable secondary MCLs and State public welfare standards. The arsenic, barium, iron, and manganese levels are likely elevated due to their release into groundwater from the aquifer sands during biodegradation of the remaining organics.

Based on extrapolations from current rates of reduction in contaminants, it is likely to take approximately 9 years for TCE and PCE in groundwater to reach the drinking water standards, as expressed by the primary MCLs, and an additional 15 years to reach PALs. Due to the low concentrations of contaminants, an active extraction and treatment system is unlikely to significantly speed up this time. The Feasibility Study for the site estimated that it would take at least 20 years of groundwater extraction and treatment to reach cleanup levels. Concentrations of iron, manganese, and arsenic are expected to require more time than TCE and PCE to reach drinking water standards, due to their release into groundwater from biodegradation of organics, which will continue whether or not groundwater is extracted and treated.

Ground water is not currently being used downgradient of the JDF and is unlikely to be used in the future due to the availability of city water and a local ordinance prohibiting wells in this area. A few side-gradient residential wells are in use; however, recent re-testing has confirmed that they are not impacted by the JDF. A conservative risk analysis shows that excess cancer risk associated with a possible impact to indoor air in the downgradient homes from the TCE and PCE present in the groundwater (for example in basements overlying the plume) is between 1×10^{-6} and 6×10^{-8} , an extremely low risk which would not justify extraction and treatment of groundwater.

Monitored natural attenuation has several additional advantages over groundwater extraction and treatment at the JDF site, including:

- ! Less generation of transfer of remediation wastes;
- ! Less intrusive surface structures are required;
- ! Cost savings of approximately \$1.4 million, calculated as the 30 year present worth cost.

U.S. EPA has therefore determined (i) that the installation of groundwater extraction and treatment systems is not necessary to achieve regulatory requirements and to protect public health and the environment, and (ii) that these goals can better be achieved by natural attenuation of groundwater contaminants. Monitored natural attenuation meets all relevant remedy selection criteria, will be fully protective of human health

and the environment, and will meet site objectives within a reasonable time period. Groundwater monitoring will continue and U.S. EPA will periodically review monitoring data to assess whether groundwater is making progress toward cleanup standards.

In commenting on the Record of Decision in 1989, the Rock County Health Department commented that if money is to be spent on groundwater remediation, the JDF site was not their top priority. Some members of the public were concerned that the proposed treatment method would transfer contaminants to air. Many commentors indicated that they did not think groundwater extraction and treatment was cost effective at this site and preferred that the site be monitored first to see if it was necessary. In effect, this is what has been done.

IV. Support Agency Comments

The WDNR indicated in a letter dated August 22, 1997 that it concurs with this ESD and has no comments.

V. Public Comments

U.S. EPA issued a mailing and published a notice of a public comment period for this proposed remedy change. The comment period began August 15, 1997 and ended August 29, 1997. U.S. EPA also offered to hold a public meeting to discuss the proposed changes, but no requests for this meeting were made and the meeting was canceled. U.S. EPA received comments only from the PRP Group. A response to these comments is attached to this ESD. U.S. EPA also received a concurrence letter from the WDNR during the comment period.

VI. Affirmation of Statutory Determination

U.S. EPA has determined that the selected remedy, with the change described above, will be protective of human health and the environment, will comply with federal and State requirements that are applicable or relevant and appropriate to this remedial action, and will be cost-effective. In addition, the revised remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site. Upon careful scrutiny of the suggested change and the information submitted to support this change, U.S. EPA, therefore, has changed the remedy set out in the ROD in the manner described above.

Responsiveness Summary for Explanation of Significant Difference

Janesville Disposal Facility
(Janesville Old Landfill and Janesville Ash Beds Superfund Sites)
Janesville, Wisconsin

Two comment letters were received during the public comment period, from the State of Wisconsin and from the Janesville Disposal Facility Potentially Responsible Party (PRP) Group.

In a letter dated August 22, 1997, the Wisconsin Department of Natural Resources stated that they agree that groundwater quality has improved downgradient of these sites and that a groundwater extraction and treatment system is no longer necessary. They concur with U.S. EPA's Explanation of Significant Difference (ESD).

In a letter dated August 20, 1997, the PRP Group stated that they are also in agreement with the ESD, but suggest the following changes:

Comment 1: Page 2, Section II, first paragraph, line 2, change "1950" to "1952".

Response: U.S. EPA has made this correction.

Comment 2: Page 3, Section III, first paragraph, last sentence, delete and substitute: "U.S. EPA believes that the data summaries included in the Petition are accurate and is in general agreement with the technical

information contained in the Petition."

Response: The sentence has been revised to read "While not necessarily endorsing all conclusions stated in the Petition, U.S. EPA believes that the data summaries included in the Petition are accurate and is in general agreement with the technical information contained in the Petition." U.S. EPA does not mean to imply that there are particular conclusions with which it disagrees; the statement is meant as a general disclaimer because the report was not authored by U.S. EPA.

Comment 3: Page 4, Section III, Remedial Actions, line 3, after "incorporation", insert " in the 1985 site".

Response U.S. EPA has made this correction; however, we have referred to the landfill as the "New Landfill" rather than the "1985 site" to be consistent with the Record of Decision.

Comment 4: Page 4, Section III, Private groundwater treatment system, line 1, delete "From 1990 to" and insert "During".

Response: U.S. EPA has made this correction.